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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,780	03/30/2005	Hideki Ichihashi	05224/HG	2277
1933 7590 05/02/2007 FRISHAUF, HOLTZ, GOODMAN & CHICK, PC 220 Fifth Avenue 16TH Floor NEW YORK, NY 10001-7708			EXAMINER GILLESPIE, BENJAMIN	
			ART UNIT 1711	PAPER NUMBER
			MAIL DATE 05/02/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/529,780	<b>Applicant(s)</b> ICHIHASHI ET AL.	
	<b>Examiner</b> Benjamin J. Gillespie	<b>Art Unit</b> 1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komiya et al ('905) in view of Kube ('212) and Greco ('839) and in further view of Carlson et al ('110).

Komiya et al teaches a polyurethane adhesive comprising a polyol mixture containing polycarbonate and polyester diol in amounts overlapping applicants' claimed ranges (Abstract, Col 2 lines 4-6, Col 8 lines 10, 53-58). Column 4 lines 18-50 teach that the polycarbonate polyol is derived from 1,6 hexanediol, while the polyester polyol is the reaction product of 1,6-hexanediol and carboxylic acids consisting of adipic or terephthalic, isophthalic, and phthalic acid, wherein both resulting polyols have number-average molecular weights between 1,000 and 3,500 (Col 6 lines 29-66). While the reactants disclosed in Komiya et al are the same as claimed by the applicant, Komiya et al is silent in specifying the adhesive is hot-melt and the polyester polyol mixture consists of both crystalline and amorphous compounds.

2. Greco also teaches polyurethane adhesives, specifically hot-melt adhesives, and explains that compositions comprising polyester polyol advantageously utilize both crystalline and amorphous polyester polyol because amorphous polyester polyol increases initial tack before cross-linking and reduces overall shrinkage of the adhesive after application. If not the adhesion may be prejudiced the mechanical strength is reduced (Col 1 lines 9-13, 43-56).

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3. Furthermore, Kube teaches a polyurethane adhesive, wherein the polyurethane is hot-melt and the reaction product of amorphous and crystalline polyester polyol with polyisocyanate (Abstract). Specifically, the amorphous polyester polyol is the reaction product of phthalic, terephthalic and/or isophthalic acid with ethylene glycol and/or neopentyl glycol and the crystalline polyester polyol is the reaction product of 1,6-hexanediol with adipic acid (Col 2 lines 62-64, 65-67; and col 3 lines 9-10, 12-16). The term "crystalline" is determined by X-ray diffraction wherein the degree of crystallization is 30% or greater (Abstract; col 2 lines 11-18). Regarding the polyester composition, the preferred amount of crystalline and amorphous polyester exists in quantities that overlap applicants' claimed ranges, and the resulting polyurethane exhibits increased mechanical strength without any adverse effect on the viscosity of the hot-melt, pot-life, or initial strength (Col 1 lines 55-61; col 3 lines 44-46). Important to note also is that Kube teaches the polyol composition may also comprise polyether polyol (Col 3 lines 45-46).

4. It would have been obvious to one skilled in the art at the time of invention to include crystalline and amorphous polyester polyol in Komiya et al as taught by Greco in order to increase initial tack, and promote homogenous mechanical strength within the cured adhesive. Furthermore, it would have been obvious to utilize the amounts of amorphous and crystalline polyester polyol as taught by Kube since Kube and Greco are both directed towards hot-melt adhesives, the compositions of Kube and Komiya et al share the same polyester reactants, and Kube teaches that the specified amounts result in a polyurethane hot-melt adhesive that has increased mechanical strength without any adverse effects on pot-life, viscosity or initial strength.

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5. Finally, regarding claims 9-14 Carlson et al teaches that hot-melt polyurethane adhesives can be molded, specifically within injection molding machines (Col 1 lines 16-19). Furthermore Carlson teaches that the injection-molded product can be directly applied to electronic circuit boards or thin strands of wire while still in the hot-melt phase (Col 3 lines 40-46). Carlson et al does not limit the processing and application of the teaching to certain polyurethane adhesives and therefore it would have been obvious to combine this teaching with that of the art presented in the previous paragraphs based on both deal with analogous polyurethane hot-melt adhesives.

***Response to Amendments***

6. Applicant's arguments filed February 21<sup>st</sup>, 2007 have been fully considered but they are not persuasive. Applicants argue that Komiya et al is *only* directed towards polyurethane elastic fibers and therefore not a sufficient reference because the technical field of the present invention is quite different. Examiner acknowledges that the composition of Komiya et al may be directed towards elastic fibers, however column 8 lines 53-57 explicitly teach that the polyurethane of Komiya et al can be utilized as an adhesive, and the determination that a reference is from a nonanalogous art is only decided if the reference is not within the field of the inventor's endeavor, which in this case is polyurethane adhesives, therefore Komiya et al has the same technical field as applicant's claimed invention. *In re Wood*, 202 USPQ 171, 174; *In re Clay*, 23 USPQ.2d 1058.

7. Applicant's arguments filed February 21<sup>st</sup>, 2007 have been fully considered but they are not persuasive. Applicants argue Greco does not teach the manner of combination of the polyesters, the ratio thereof, or object to be adhered. Examiner acknowledges Greco is silent regarding amounts polyester polyol and possible substrates, however the aim of Greco is not to

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establish a ratio of crystalline and amorphous polyester. Instead, the aim is to show it was commonly known to include both amorphous and crystalline polyester polyols in polyurethane composition based on the motivation that it improves the properties of the resulting hot-melt adhesive.

8. Applicants further argue that Kube is deficient because the aromatic polyester is not an essential component of Kube, there is no teaching of polycarbonate polyol, and Kube is only drawn to adhering to wood. Firstly, Greco has already established the criticality of including both amorphous and crystalline polyester polyol in a polyurethane hot-melt adhesive. Secondly, the examiner acknowledges that Kube initially allows as little as 0-wt% of amorphous (aromatic) polyester, but column 3, lines 50-54 show that the particularly preferred composition contains at least 4-wt%; the rationale that the amorphous (aromatic) polyester is not essential is unfounded.

9. Although the examiner acknowledges that Kube does not teach polycarbonate polyol, Komiya et al already establishes a polycarbonate/polyester based polyurethane composition and through the motivation of Greco it still would have been obvious to include the teaching of Kube in Komiya et al. It is a prima facie case of obvious to combine two compositions, which in this case are the A) amorphous/crystalline polyester based polyurethane adhesives of Greco and Kube and the B) polycarbonate/polyester based polyurethane adhesive of Komiya et al, each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition which is to be used for the very same purpose, i.e. polyurethane adhesives *In re Kerkhoven* 205 USPQ 1069. Furthermore, determination that a reference is from a nonanalogous art is decided if the reference is not within the field of the inventor's endeavor. However, in this case both Kube and Greco are directed towards polyurethane based hot-melt adhesives.

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10. The examiner acknowledges that Komiya et al, Kube and Greco are silent in teaching a metal substrate, however one would reasonably expect that the polyurethane adhesive would adhere to a metal substrate. Finally, examiner acknowledges that Komiya et al is silent in regards to specifying the adhesive is a hot-melt adhesive, nevertheless Komiya et al does not teach away from hot-melt applications and in view of Kube and Greco it would have been obvious to utilize Komiya et al as a hot-melt adhesive based on the motivation that both Kube and Greco are as such.

11. Applicant's arguments filed February 21<sup>st</sup>, 2007 have been fully considered but they are not persuasive. Aforementioned, one would reasonable expect the hot-melt adhesive rendered obvious by Komiya et al in view of Greco and Kube to adhere to a metal substrate. Additionally, Carlson et al recite no limitation regarding the type of hot-melt adhesive polymer, therefore one would reasonably expect the hot-melt adhesive rendered obvious by Komiya et al in view of Greco and Kube would be analogous to that of Carlson et al. Therefore it would have been obvious to utilize the method of Carlson et al to apply the hot-melt adhesive because the mere substitution of an equivalent, in this case a hot-melt adhesive, is not as act of invention; where equivalency is known to the prior art, the substitution of one equivalent for another is not patentable. *In re Ruff* 118 USPQ 343 (CCPA 1958).

12. Applicant's amendments, filed February 21<sup>st</sup>, 2007, with respect to the rejection of claims 5 and 11 under 35 U.S.C. 112 2<sup>nd</sup> paragraph have been fully considered and are persuasive. The rejections of claims 5 and 11 have been withdrawn.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin J. Gillespie whose telephone number is 571-272-2472. The examiner can normally be reached on 8am-5:30pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

B. Gillespie

  
**RABON SERGENT**  
**PRIMARY EXAMINER**